REMARKS

The applicants wish to traverse the Examiner's grounds of rejection as unreasonable for the following reasons:

Claim Rejections under 35 USC §102

Claims 1 and 2 stand rejected under 35 U.S.C. 102(b) as being anticipated by Yamazaki et al. (JP 2001-159107).

The present invention is a vehicle impact attenuator that can be installed in the vicinity of a road in order to immediately stop a colliding vehicle and reduce the impact to the vehicle. There are a total of five (5) embodiments for the present invention. The first embodiment is illustrated in Fig. 1, in which the vehicle impact attenuator (100) includes a shock absorber (10) that deforms upon a collision by a vehicle, a support (20) for the shock absorber (10), and a holding portion (30) that is fixed on an installation surface E and holds the support (20) in a vertical position on the installation surface E. The holding portion (30) is made of a release portion having a breaking strength that allows the release portion to fracture upon application of a load equal to or exceeding a set value, thereby releasing the support (20). Further, the support 20 can deform upon application of a load less than a set value.

Further the holding portion (30) of the present invention has a connecting portion (31) fixed on a lower part of the support (20) so as to hold the support (20) in a vertical position, and anchor bolts (33) implanted in the installation surface E through engaging holes 32 provided in the

connecting portion (31). The anchor bolts (33) (release portion) can fracture upon application of a load equal to or exceeding a set value to thereby release the support (20).

At the outset is should be note that Yamazaki et al. (JP 2001-159107) is assigned to NKC KK and Osaka Prefecture as is the present invention.Yamazaki et al. (JP 2001-159107) describes a collision buffering body (8) having two shock-absorbing members (6) affixed to supporting body (3).

However, Yamazaki et al. (JP 2001-159107) fails to disclose the support (20) or the holding portion (30) is made of a release portion having a breaking strength that allows the release portion to fracture upon application of a load equal to or exceeding a set value, thereby releasing the support (20). However, Yamazaki et al. (JP 2001-159107) discloses that pines (4) are designed to fracture under a certain load level and a preferable load level is, for example, a value between 49kN and 392kN. Hence, the applicants believe that the present invention distinguishes over the cited document JP2001-159107 for the following reasons.

(i) The release portion of the present invention has a breaking strength that allows the release portion to fracture upon application of a load equal to or exceeding **a set value**.

(ii) The support of the present invention can plastically deform upon application of a load less than the above set value.

Reasons (i) and (ii) mean that when a vehicle collides with a vehicle impact attenuator of the invention, the release portion fractures at first, then the support deforms. These features are shown in Figs. 2 ((c) and (d)), 6 ((c) and (d)) and 16 ((b) and (c)). The features are described in paragraphs [0059], [0081] and [0118] of the publication of the application (Pub. No.: US2006/0099030A1).

In [0059}, for example, "When a vehicle C collides with the vehicle impact attenuator 100 ...., the impact is first absorbed by the deformation of the shock absorber 10 as shown in Fig. 2(b), then by the plastic deformation of the support 20 as shown in Fig. 2(c), and then by the fracture of the holding portion 30". Accordingly, the vehicle impact attenuator of the invention has an impact load absorbing capacity that is higher than that achieved by the flexibility of the shock absorber, due to the contribution of the plastic deformation of the support (refer to paragraph [0023] of the publication). In other words, the vehicle impact attenuator of the invention can effectively absorb impact energy.

Therefore, the applicants traverse the Examiner's grounds of rejection. Further, the applicants request the withdrawal of the rejection of claims 1 and 2 under 35 U.S.C. 102(b) as being anticipated by Yamazaki et al. (JP 2001-159107).

Claim 1 stands rejected under 35 U.S.C. 102(b) as being anticipated by Medley, Jr. (U.S. 3,838,661).

Medley, Jr. (U.S. 3,838,661) describes a collapsible post (10) having a base unit (12) and a separable spring-containing post unit (14) connected to one another by an elongated extensible connecting member (16), such as a flexible cable. The base unit (12) includes a base body (18) made of a synthetic plastic. An elongated tubular upright member (48), also preferably of synthetic plastic material surrounds a tubular filler core (46) of synthetic plastic material. The lower end of the upright tubular member (48) has a lower recess or socket (60) which is configured to fit over a

projection (20) in the base (12) in mating engagement therewith so as to hold the collapsible post (10) in a vertical position.

However, Medley, Jr. (U.S. 3,838,661) fails to disclose the support (20) or the holding portion (30) is made of a release portion having a breaking strength that allows the release portion to fracture upon application of a load equal to or exceeding a set value, thereby releasing the support (20). Therefore, applicants wish to traverse the Examiner's grounds of rejection. Further, the applicants request the withdrawal of the rejection of claim 1 under 35 U.S.C. 102(b) as being anticipated by Medley, Jr. (U.S. 3,838,661).

Claims 1 and 7 stand rejected under 35 U.S.C. 102(b) as being anticipated by Leach et al. (U.S. 3,717,326).

Leach et al. (U.S. 3,717,326) describes an energy absorbing highway barrier having a post (14) pivotally anchored by mechanism (16) and post (17) restricted from pivoting by mechanism (18). As shown in Figure 2, a bolt (60) is fastened through pivotal connector (68) to a ground anchor (58). A vehicle striking the barrier at any point will urge tipping and displacement of posts (14) and (17) and stretching cable (20).

However, Leach et al. (U.S. 3,717,326) fails to disclose the support (20) or the holding portion (30) is made of a release portion having a breaking strength that allows the release portion to fracture upon application of a load equal to or exceeding a set value, thereby releasing the support (20). Thus, applicants wish to traverse the Examiner's grounds of rejection. Further, the applicants

request the withdrawal of the rejection of claims 1 and 7 under 35 U.S.C. 102(b) as being anticipated by Leach et al. (U.S. 3,717,326). Further, the applicants request the withdrawal of the rejection of claims 1 and 7 under 35 U.S.C. 102(b) as being anticipated by Leach et al. (U.S. 3,717,326).

Claims 1, 2, 4 and 11/12 stand rejected under 35 U.S.C. 102(b) as being anticipated by Hirotaka (JP 10-176314).

The English language abstract of Hirotaka (JP 10-176314) describes a support member (5) erected on a foundation member (6) that is embedded in the roadbed.

Again, Hirotaka (JP 10-176314) fails to describe the support (20) or the holding portion (30) is made of a release portion having a breaking strength that allows the release portion to fracture upon application of a load equal to or exceeding a set value, thereby releasing the support (20). Thus, applicants wish to traverse the Examiner's grounds of rejection. Further, the applicants request the withdrawal of the rejection of claims 1, 2, 4 and 11/12 under 35 U.S.C. 102(b) as being anticipated by Hirotaka (JP 10-176314).

Claim Rejections under 35 USC §103

Claims 1 and 3 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Maestri (U.S. 4,183,505) in view of Kuykendall et al. (U.S. 4,432,172).

Maestri (U.S. 4,183,505) describes a guard barrier system having cylindrical, solid, resilient bumper elements (10) mounted on posts (12). The posts (12), which are suitably steel, are fixed to the ground (13).

Therefore, contrary to the Examiner's assertions Maestri (U.S. 4,183,505) fails to describe "a shock absorber that deforms upon a collision of a vehicle to thereby reduce the impact on the vehicle". In Maestri (U.S. 4,183,505) the bumper elements (10) are described as being solid and resilient. Specifically, column 2, lines 58-66 of Maestri (U.S. 4,183,505) state,

> "Consequently, a vehicle striking the system will strike at least one of the bumper elements, and the resilience of the bumper elements in combination with their ability to be rotated against some frictional resistance thus maximizes the extent to which each bumper element, or a sequence of the bumper elements, will absorb and dissipate impact force, and minimizes the possibility of damage to the system itself from the impact."

Therefore, applicants wish to traverse the Examiner's grounds of rejection.

The Examiner admits that Maestri (U.S. 4,183,505) fails to "the support or the holding portion having a release portion that fractures upon application of a load equal to or exceeding a set value". However, the Examiner asserts that Kuykendall et al. (U.S. 4,432,172) teaches "fracture zones".

Kuykendall et al. (U.S. 4,432,172) describes a breakaway timber support pole that has cuts or recesses made in them to weaken the pole which are filled with a polymeric filler. However, the Kuykendall et al. timber pole fails indicate that the timber will fracture under "a load equal to or

exceeding a set value". It is not known what load will cause the timber ole to fracture since each timber's fracture point will vary due to the nature of the wood and the depth of the cuts.

Therefore, applicants wish to traverse the Examiner's grounds of rejection. Further, the applicants request the withdrawal of the rejection of claims 1 and 3 under 35 U.S.C. 103(a) as being unpatentable over Maestri (U.S. 4,183,505) in view of Kuykendall et al. (U.S. 4,432,172).

Claims 1, 3 and 4 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Svensson (U.S. 4,196,550) in view of Maestri (U.S. 4,183,505).

Svensson (U.S. 4,196,550) describes a post that consists of a tube (2) having circumferentially spaced slits (1) which extend at intervals longitudinally of the tube. To stabilize the portions of material (3) between the slits and to prevent outward buckling, the tube is provided with an external shell (4) of slightly elastic material, e.g. plastic material, which adheres to the tube (2).

Therefore, contrary to the Examiner's assertions the shell (4) does not act as "a shock absorber that deforms upon a collision of a vehicle to thereby reduce the impact on the vehicle". Therefore, applicants wish to traverse the Examiner's rejection. Further, the applicants request the withdrawal of the rejection of claims 1, 3 and 4 under 35 U.S.C. 103(a) as being unpatentable over Svensson (U.S. 4,196,550) in view of Maestri (U.S. 4,183,505).

Claims 5, and 8/5 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Medley, Jr. (U.S. 3,838,661) in view of Andonian (U.S. 5,207,175).

Andonian (U.S. 5,207,175) describes a marker post.

Applicants are of the opinion claims 5 and 8 are allowable by virtue of there dependence from allowable independent claim 1. Therefore, applicants request the withdrawal of the rejection of claims 5, and 8/5 under 35 U.S.C. 103(a) as being unpatentable over Medley, Jr. (U.S. 3,838,661) in view of Andonian (U.S. 5,207,175).

Claims 3, 4, 8/3 and 8/4 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Hirotaka (JP 10-176314) in view of Svensson (4,196,550).

Applicants are of the opinion claims 3, 4 and 8 are allowable by virtue of there dependence from allowable independent claim 1. Therefore, applicants request the withdrawal of the rejection of claims 3, 4, 8/3 and 8/4 under 35 U.S.C. 103(a) as being unpatentable over Hirotaka (JP 10-176314) in view of Svensson (4,196,550).

Claims 9/2, 9/4, 10/2, 10/4, 11/2 and 11/4 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Hirotaka (JP 10-176314) in view of Kuykendall et al. (U.S. 4,432,172).

Applicants are of the opinion that claims 2, 4, 9, 10 and 11are allowable by virtue of there dependence from allowable independent claim 1. Therefore, applicants request the withdrawal of

the rejection of claims 9/2, 9/4, 10/2, 10/4, 11/2 and 11/4 under 35 U.S.C. 103(a) as being unpatentable over Hirotaka (JP 10-176314) in view of Kuykendall et al. (U.S. 4,432,172).

Claims 9/5, 10/9/5 and 11/5 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Medley, Jr. '661 in view of Andonian '175, as applied to claim 5 above, and further in view of Kuykendall et all. '172.

Applicants are of the opinion claims 5, 9, 10 and 11are allowable by virtue of there dependence from allowable independent claim 1. Therefore, applicants request the withdrawal of the rejection of claims 9/5, 10/9/5 and 11/5 under 35 U.S.C. 103(a) as being unpatentable over Medley, Jr. '661 in view of Andonian '175 and further in view of Kuykendall et all. '172.

Conclusion

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact the applicants' undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, the applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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